

Appendix

War, Solidarity, and Welfare Attitudes: Survey Evidence from the War in Ukraine

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Section A: Survey details and variable descriptives

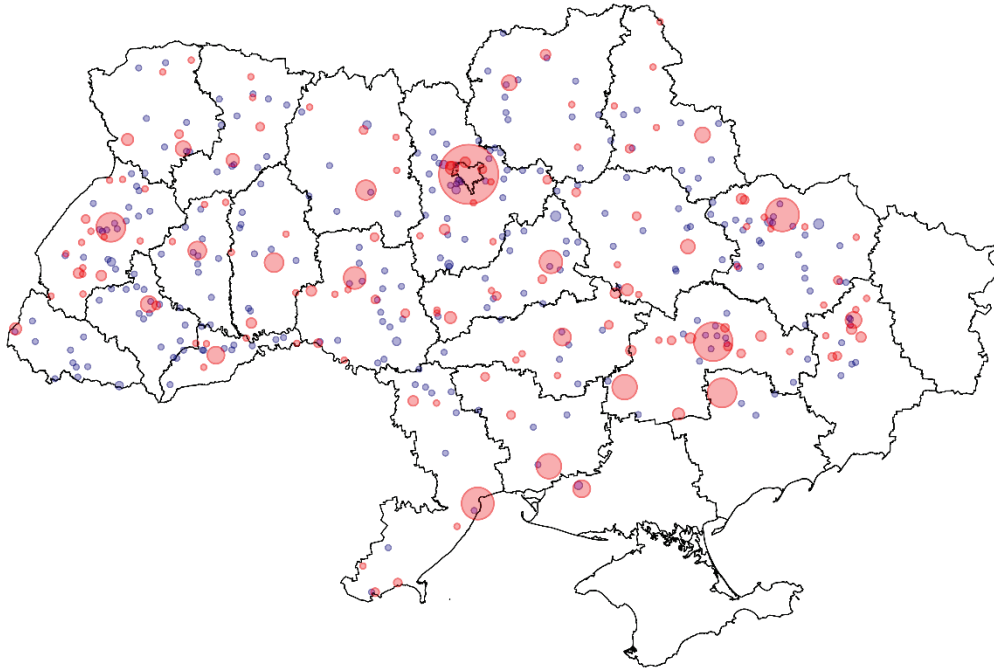
The national survey titled “Ukraine War and Welfare Survey – March 2023” was developed by the authors together with Ukrainian country experts, with attention given to local political, cultural and linguistic context, and not least the specific conditions of ongoing warfare. After developing the questionnaire, the Kyiv International Institute of Sociology (KIIS) was commissioned with conducting the survey by means of Computer-Assisted Telephone Interviews (CATI). KIIS translated the English survey items into Ukrainian and Russian, and proceeded with a pre-test of 24 interviews in early March 2023. After minor adjustments, the main fieldwork stage occurred from March 10 to March 21, 2023. During this fieldwork phase, a total of 1,001 respondents were interviewed in telephone interviews lasting approximately 30 minutes. The interviews were held either in Ukrainian or Russian, depending on the respondent’s preference.

The survey’s target population encompassed all adults aged 18 years and older who possessed mobile phones and resided in areas under government control. The sampling strategy employed a stratified random sample of mobile phone numbers. The strata were defined based on the three-digit main operator’s prefixes, with the remaining digits generated randomly. The final response rate was 12%. Control measures were implemented to ensure a balanced distribution across regions and between urban and rural areas. The survey covers 456 settlements in all regions of Ukraine, excluding residents residing in territories not controlled by the Government of Ukraine, such as Crimea, Sevastopol, specific districts in Donetsk, Luhansk, Kherson, and Zaporizhzhia regions. Excluding the non-access to territories under occupation, the survey’s design and methodology allowed for an estimated maximum sampling error of no more than 3.1%, based on pre-war parameters.

One challenge was to collect sufficiently precise location data for the respondents. The challenge stems not only from the lack of generally utilized precise location indicators (such as postal codes) but also the perceived sensitivity in providing such information in rapidly changing wartime conditions. In addition to pre-invasion and current Oblast (First-level administrative division) of residence, which each respondent had to provide, each respondent was asked for the name of their (closest) settlement. Due to an initial error, the precise location of non-urban respondents had to be collected in a second, supplementary interview round.

After excluding refusals and inconsistent answers, we nonetheless ended up with 936 respondents that could be linked to one of the 30,000 Ukrainian settlements listed as ADM4-localities by UNOCHA, and thus assigned location coordinates. The geographical distribution is visualized in Fig. A1, distinguishing between cities (red circles) and smaller towns and villages (blue circles).

Figure A1: Ukraine, survey respondents by current place of residence



Note: Post-invasion geographical distribution of respondents for which location data is available (936/1,001). Circle size corresponds to the number of respondents in each locality. Red circles denote Cities (637 respondents across 140 localities); Blue circles denote villages and towns (299 respondents across 276 localities). Locations are centroids of ADM4 localities as given by UNOCHA.

Dependent variables

Social policy priority

To capture the relative priority assigned to social spending, respondents were asked to answer the following question:

Public resources are scarce. In the current situation of war, how important are each of the following spending priorities on a scale from 0 to 10? (where 0 means not important and 10 means very important).

UKR: Державні ресурси обмежені. Зараз, під час війни, наскільки важливим є кожен із цих пріоритетів витрат за шкалою від 0 до 10? (де 0 означає не важливо, а 10 означає дуже важливо).

RUS: Государственные ресурсы ограничены. Сейчас, во время войны, насколько важен каждый из этих приоритетов расходов по шкале от 0 до 10? (где 0 означает не важно, а 10 означает очень важно).

The respondent assigned a number for each of the following areas, with the summary results presented in table A1 below:

- a) Public administration (Державне управління/ Государственное управление)

- b) Defense (Оборона/Оборона)
- c) Public order and safety (Громадський порядок і безпека/Общественный порядок и безопасность)
- d) Infrastructure and energy (Інфраструктура та енергетика/Інфраструктура и энергетика)
- e) Environmental protection (Охорона навколишнього середовища/Охрана окружающей среды)
- f) Housing and community amenities (Житло та благоустрій/Жилье и благоустройство)
- g) Social protection and Health (Соціальний захист та охорона здоров'я/Социальная защита и здравоохранение)
- h) Recreation, culture and religion (Відпочинок, культура і релігія/Отдых, культура и религия)
- i) Education (Освіта/ Образование)

Table A1. Descriptive statistics: Spending Priorities

Item	Obs.	Mean	Std. Dev.	Min	Max
a. Public Administration	944	6.36	3.43	0	10
b. Defense	994	9.74	.96	0	10
c. Public order and safety	995	8.53	2.13	0	10
d. Infrastructure and energy	995	9.02	1.69	0	10
e. Environmental protection	992	7.27	2.79	0	10
f. Housing and community amenities	991	7.52	2.7	0	10
g. Social protection and Health	995	8.85	1.79	0	10
h. Recreation, culture and religion	983	5.31	3.11	0	10
i. Education	993	8.67	2.03	0	10

Note: summary results for full sample (N=1,001) excluding non-answers.

The final variable *Social Expenditure Priority* is the difference between the response for item *g* (Social protection and Health) and the average for items *a* through *i*, for each respondent. For alternative logit regressions, the variable is dichotomized around the median in order to reduce the influence of extreme values and achieve equal-size groups (see Table A4 and A5 for statistics).

National solidarity

To capture the extent to which solidarity is directed towards the national collective, respondents were asked to answer the following question:

Imagine that local volunteers that you trust asked you for a contribution for people in need. On a scale from 0 to 10, how likely is it that you would contribute if the intended beneficiaries were:

UKR: Уявіть, що місцеві волонтери, яким Ви довіряєте, попросили Вас зробити внесок для допомоги людям, які цього потребують. Оцініть за шкалою від 0 до 10, де 0 означає «Зовсім неімовірно», а 10 означає «Дуже ймовірно», наскільки ймовірно, що Ви зробили б внесок, якщо очікувалось, що допомогу мають отримати:

RUS: Представьте, что местные волонтеры, которым Вы доверяете, попросили Вас внести вклад для помощи людям, которые в этом нуждаются. Оцените по шкале от 0 до 10, где 0 означает «Совершенно не вероятно», а 10 означает «Очень вероятно», насколько вероятно, что Вы бы внесли бы вклад, если ожидалось, что помощь должны

The final variable *Fairness demand* is the untransformed response to the above item. For alternative logit regressions, the variable is dichotomized around the median, in practice assigning 1 to the highest response (10) and 0 to the rest (see Table A4 and A5 for statistics).

Final variables

Table A4: Descriptive statistics: Continuous & ordinal variables

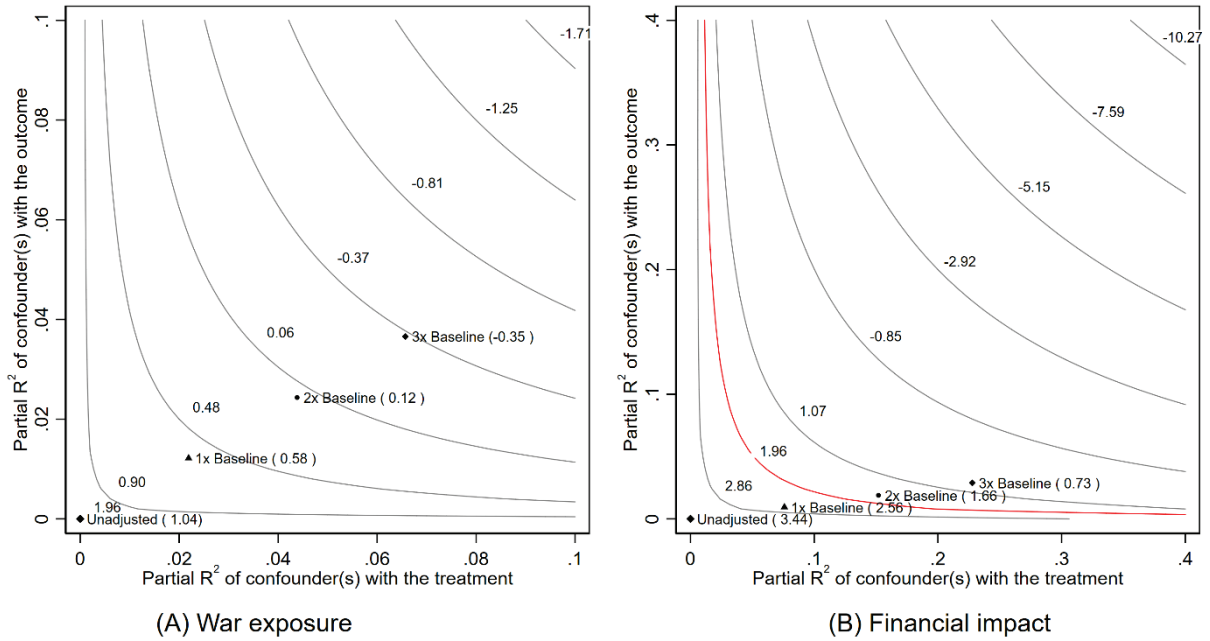
Variable	Full sample					Reduced sample				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Soc. Exp. Prio	995	.9	1.36	-5.44	6.56	860	.92	1.39	-5.44	6.56
Rel. Nat. Solidarity	979	.32	1.2	-6.25	7.5	847	.31	1.21	-5	7.5
Fairness demand	957	8.23	2.64	0	10	827	8.2	2.67	0	10
War exp. (20km)	936	.45	.38	0	1	808	.44	.38	0	1
Financial impact	991	.67	.23	0	1	860	.66	.23	0	1
Income group	996	2.99	1	1	6	861	2.96	1	1	6
Household size	1001	2.66	1.41	1	6	866	2.64	1.41	1	6

Note: Full sample includes responses for the complete sample (max N=1,001), excluding non-responses. Reduced sample excludes anyone who moved abroad or within Ukraine for a substantial period between February 2022 and March 2023. The reduced sample is used in the main analysis.

Starting with the estimated association between financial impact and Social Expenditure priority, RV_{XY} (6) indicates that an omitted confounder would have to explain at least 5% of the residual variance of both X and Y in order to bring the association below statistical significance ($p > 0.05$). Logically feasible, the existence of such a strong confounder appears unlikely. Rows 7-11 show that even with an omitted confounder with a strength equal to all four basic controls together, the positive estimate would remain well within conventional statistical significance levels. Panel B in Figure B1 below provides a more general picture of the sensitivity, indicating the impact of confounders at alternative strengths (at up to 3 x that of basic controls, or “Baseline”), and allowing for assessing the impact when varying the strength of the association between Z and X on the one hand, and Z and Y on the other. The conclusion is that even in the presence of a strong confounder (relative to included controls), the results would remain substantively valid.

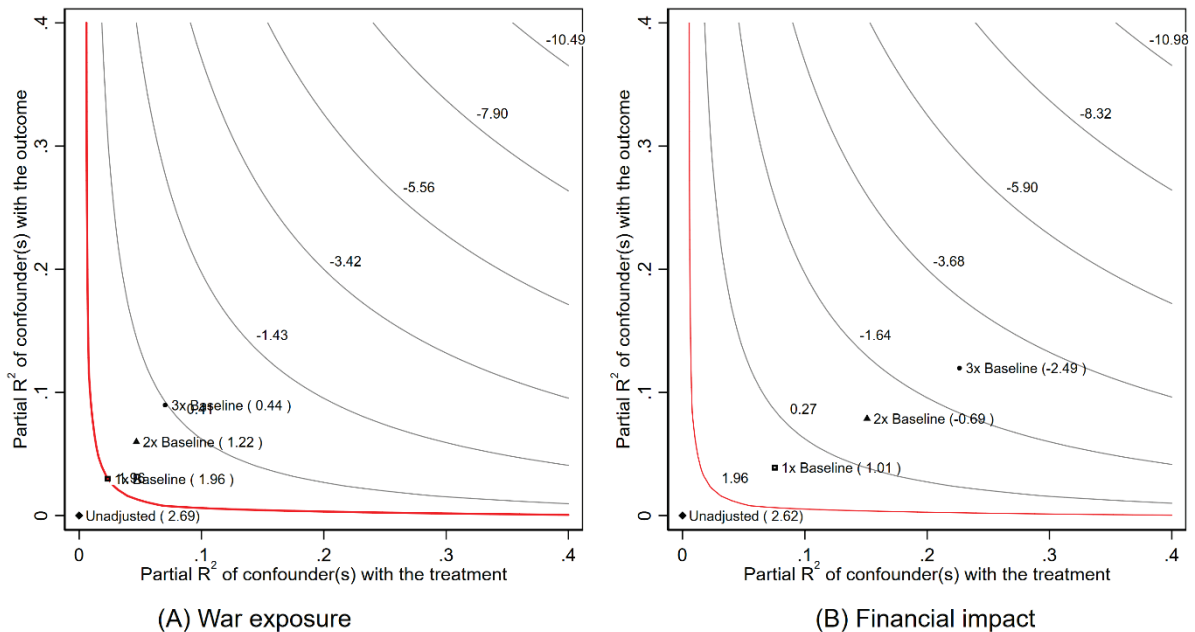
The two associations for National Solidarity are both positive and statistically significant in the full models. The statistic given in row 6 in Table B4 (RV_{XY} ($p > 0.05$)) would however, indicate that, compared to the association between Financial Impact and Social Policy Priority, both are considerably more sensitive to the omission of confounders. Here it would suffice with a confounder explaining 2.6% (war exposure) and 2.3% (financial impact) of the residual variance of X and Y to bring the association below statistical significance. In a purely statistical sense, both are thus equally sensitive. However, the data as such tells us only so much. Our knowledge about the data generation process (treatment assignment and data collection) tells us that whereas Financial Impact is theoretically liable to vary systematically with factors that may at the same time predict the outcome (National Solidarity) this is much less the case for the quasi-exogenous War Exposure variable, based on third-party data. Thus, in practice, the risk of a omitted confounder being strong enough to overturn the results is much less in the case of the War Exposure model. The conjecture is supported by the much lower Residual variance (both X and Y) explained by our four basic controls in the case of the War Exposure – National Solidarity model (B2(3)), compared to the Financial Impact – National Solidarity model (B2(6)). Indeed, if our included controls say anything about the nature of associations between potential unobserved confounders with X and Y, even in the presence of an omitted confounder of equal strength, the results would hold in the case of the former. Conversely, in the case of the Financial Impact – National Solidarity model, the inclusion of such a confounder would bring the estimated association well below statistical significance at the 95% level. The relative sensitivity of the two models is further illustrated in Figure B2, showing the hypothetical implication of inclusion of potential confounders of 1, 2, and 3 times the strength of the basic controls, for the statistical robustness, with the 95% significance level indicated in red.

Figure B1: Sensitivity to OVB, Social Expenditure Priority models



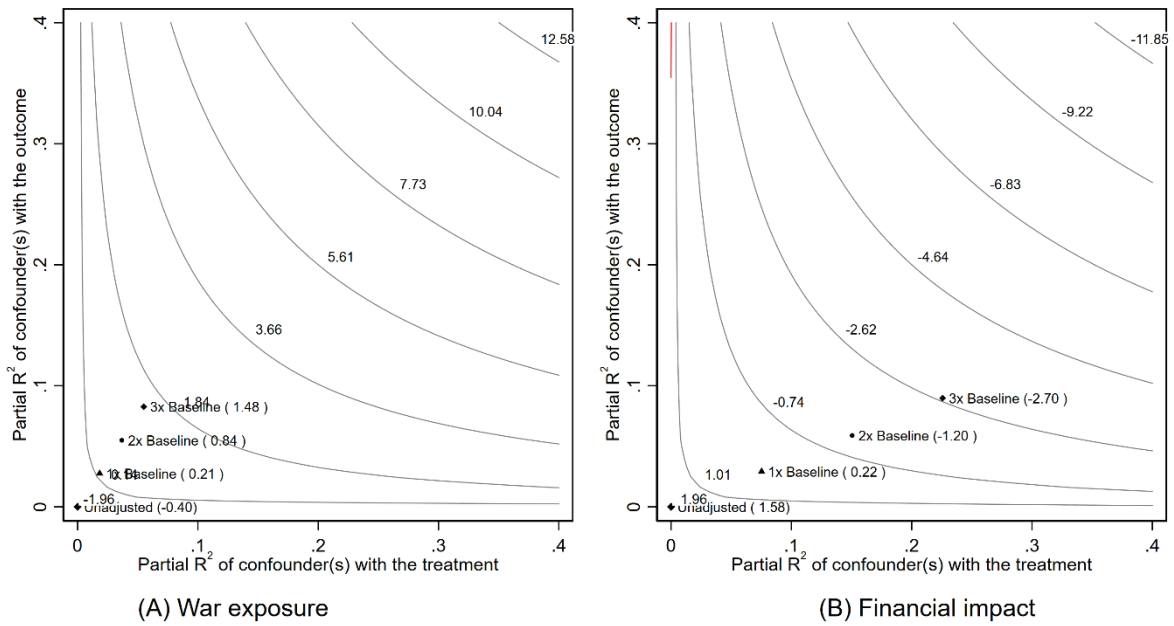
Note: Based on full models 3 and 6 in Table B1. Contour lines show t-value of main estimate on the assumption of inclusion of omitted confounders of varying association with treatment (X axis) and outcome (Y) axis. t-value corresponding to 95% confidence level marked in red when original estimate is statistically significant. Markers show the impact of potential confounders based on 1, 2, and 3 times the strength of the four baseline controls (gender, age, income, education).

Figure B2: Sensitivity to OVB, Relative National Solidarity models



Note: Based on full models 3 and 6 in Table B2. Contour lines show t-value of main estimate on the assumption of inclusion of omitted confounders of varying association with treatment (X axis) and outcome (Y) axis. t-value corresponding to 95% confidence level marked in red when original estimate is statistically significant. Markers show the impact of potential confounders based on 1, 2, and 3 times the strength of the four baseline controls (gender, age, income, education).

Figure B3: Sensitivity to OVB, Fairness Demand models



Note: Based on full models 3 and 6 in Table B3. Contour lines show t-value of main estimate on the assumption of inclusion of omitted confounders of varying association with treatment (X axis) and outcome (Y) axis. t-value corresponding to 95% confidence level marked in red when original estimate is statistically significant. Markers show the impact of potential confounders based on 1, 2, and 3 times the strength of the four baseline controls (gender, age, income, education).

Table B9: National Solidarity, original components (direct war exposure)

	Baseline	Original components (absolute values)			
	(1)	(2)	(3)	(4)	(5)
	National solidarity	Neighbors	Own reg.	Other reg.	Non-Ukr.
War exposure (20km)	0.390*** (0.100)	-0.260 (0.241)	0.081 (0.240)	0.129 (0.251)	-1.097*** (0.295)
Female (Y/N)	-0.055 (0.074)	0.258 (0.150)	0.197 (0.178)	0.257 (0.153)	0.530* (0.242)
Age group (ref: 18-24)					
25-34	-0.000 (0.147)	0.546 (0.366)	0.620 (0.383)	0.406 (0.417)	0.188 (0.481)
35-44	0.074 (0.166)	0.511 (0.425)	0.583 (0.373)	0.457 (0.363)	0.092 (0.477)
45-54	0.051 (0.138)	0.501 (0.359)	0.436 (0.381)	0.246 (0.412)	-0.302 (0.426)
55-64	0.228 (0.136)	0.623 (0.339)	0.326 (0.381)	0.393 (0.385)	-0.615 (0.443)
65+	-0.128 (0.156)	0.430 (0.307)	0.257 (0.336)	-0.040 (0.381)	-0.140 (0.473)
Educ. level (ref: Secondary)					
Post-Secondary	-0.146 (0.143)	-0.071 (0.252)	-0.236 (0.270)	-0.201 (0.285)	0.173 (0.392)
University degree	0.063 (0.135)	-0.392 (0.251)	-0.603* (0.285)	-0.427 (0.277)	-0.735 (0.408)
Income group	0.083 (0.047)	0.095 (0.097)	0.005 (0.115)	0.043 (0.116)	-0.281 (0.143)
Constant	-0.084 (0.237)	8.131*** (0.453)	8.269*** (0.475)	8.004*** (0.509)	7.961*** (0.707)
<i>N</i>	789	793	789	789	781
<i>R</i> ²	0.049	0.015	0.013	0.011	0.061

Standard errors clustered on locality in all models.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B11: Relative national trust and original components (war exposure)

	Baseline	Original components (absolute values)		
	(1)	(2)	(3)	(4)
	Nat. Trust	Neighborhood	Own region	Other regions
War exposure (20km)	0.485*** (0.124)	-0.260 (0.224)	-0.177 (0.240)	0.507* (0.218)
Female (Y/N)	0.128 (0.084)	0.228 (0.155)	0.024 (0.159)	0.271 (0.177)
Age group (ref: 18-24)				
25-34	0.114 (0.181)	0.340 (0.381)	0.808* (0.389)	0.786 (0.456)
35-44	0.243 (0.160)	-0.311 (0.364)	0.196 (0.366)	0.360 (0.424)
45-54	0.191 (0.177)	-0.278 (0.399)	0.364 (0.372)	0.352 (0.443)
55-64	0.163 (0.168)	0.175 (0.431)	0.715 (0.412)	0.695 (0.457)
65+	0.292 (0.169)	0.042 (0.390)	1.041** (0.381)	0.972* (0.439)
Educ. level (ref: Secondary)				
Post-Secondary	-0.138 (0.149)	0.134 (0.302)	-0.172 (0.277)	-0.248 (0.317)
University degree	-0.133 (0.134)	-0.215 (0.286)	-0.505 (0.278)	-0.618* (0.298)
Income group	0.013 (0.047)	0.008 (0.122)	0.123 (0.121)	0.092 (0.132)
Constant	-0.890*** (0.222)	7.327*** (0.533)	6.252*** (0.508)	5.456*** (0.539)
<i>N</i>	754	789	775	754
<i>R</i> ²	0.034	0.018	0.026	0.026

Standard errors clustered on locality in all models.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B12: Relative national trust and original components (financial impact)

	Baseline	Original components (absolute values)		
	(1)	(2)	(3)	(4)
	Nat. Trust	Neighborhood	Own region	Other regions
Financial impact (B1)	-0.094 (0.182)	-0.853* (0.376)	-1.594*** (0.374)	-1.449*** (0.399)
Female (Y/N)	0.101 (0.082)	0.250 (0.171)	0.002 (0.169)	0.231 (0.181)
Age group (ref: 18-24)				
25-34	0.041 (0.190)	0.465 (0.399)	0.900* (0.392)	0.782 (0.417)
35-44	0.195 (0.184)	-0.310 (0.385)	0.175 (0.379)	0.286 (0.404)
45-54	0.108 (0.180)	-0.164 (0.376)	0.534 (0.371)	0.360 (0.395)
55-64	0.080 (0.178)	0.241 (0.372)	0.739* (0.366)	0.609 (0.392)
65+	0.210 (0.181)	0.055 (0.376)	0.960** (0.370)	0.801* (0.398)
Educ. level (ref: Secondary)				
Post-Secondary	-0.089 (0.131)	0.210 (0.271)	-0.008 (0.269)	-0.041 (0.288)
University degree	-0.032 (0.131)	-0.241 (0.271)	-0.521 (0.269)	-0.475 (0.288)
Income group	0.020 (0.047)	-0.032 (0.097)	0.042 (0.095)	0.033 (0.102)
Constant	-0.639* (0.269)	7.784*** (0.560)	7.350*** (0.552)	6.685*** (0.591)
<i>N</i>	799	840	823	799
<i>R</i> ²	0.007	0.025	0.045	0.032

Standard errors in parenthesis.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

